

Haying of Warm Season Grasses

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The country where I live in SE Nebraska is considered to be in the Rolling Hills topographic region of Nebraska. It is hilly land with moderate to steep slopes. This region is mostly glacial till. Some areas were capped with loess-wind blown soil – most of which has been eroded by wind or water since the coming of the plow. Average annual precipitation is around 30 inches, seventy percent of which comes during the growing season of plants. This is similar to the precipitation occurrence throughout the Central Plains region.

Portions of eastern Kansas, eastern Nebraska, most of Iowa eastward through Illinois lies within the boundary of the Tall Grass Prairie ecosystem. This prairie region, prior to the plow, was a vast expanse of tall grasses waving with the wind as far as the eye could see. Today little remains. Eastern Nebraska probably has 10-15% of the original prairie remaining while Iowa reportedly has less than 1% remaining.

Plant composition is diverse in this ecosystem. Different plant species have been identified in numbers exceeding 300 within this landscape. Grass species generally make up 85+ percent of the composition with forbs at 5-10% and shrubby species less than 5%. Most of the herbage production comes from warm season growing plants, namely five grass species. These grasses are Big bluestem, Little bluestem, Indiangrass, Sideoats grama, and Switchgrass (all names given are the common name); Two other warm season grasses, Eastern gamagrass and prairie cordgrass occur on selected sites.

These Tall grass prairie plants form the bulk of the warm season grazing and haying activity in the aforementioned geographic region and are the base reference plants in my presentation. Harvesting of forage requires some forward planning. Harvest and projected use of the herbage requires that we look at kind and class of livestock, sale or private use, time of harvesting, number of cuttings, restoration period needed, plant community, protein and other nutrients (produced and removed), yields, and perhaps others not mentioned. Palatability, nutrient content, relative feed value, etc., are other important considerations to apply when determining harvest of hay.

Warm season plants generally begin their growth after soil temperatures approach 65 degrees F. Most rapid growth generally occurs once average daily maximums reach about 86° F, generally occurring about mid June in our area. Most grass species have their highest crude protein percentage shortly after beginning growth, declining with plant maturity. Plant growth begins slow but increases rapidly as environmental conditions become more favorable. Most of the warm season grasses, harvested for hay, having begun growth by mid-May,

produce 85%± of their annual production by the end of July. Time of harvest thereby becomes an important consideration. Number of cuttings are generally held to one/year in our area, with a couple of specie exceptions – eastern gamagrass and Switchgrass.

All of the grassland ecosystems in the Great Plains area were developed under grazing pressure by various animal species (mostly large ungulates) and fire. Periodic drought, infestation by insects, etc., was probably also a factor in establishment and survival of the prairie. All plants need a restoration period following defoliation to replace root mass lost, leaf area removed, etc. Normally, in our area, a restoration period of 45-60 days is projected to be the minimum amount of time for this to occur. Some degree of variance from this can occur and we can discuss. A fall season restoration period is also necessary for plants and this occurs in late August through September for most warm season plants.

Removal of herbage through hay harvest removes nutrients such as nitrogen, phosphorous, potassium, sulfur, calcium, etc. These must be replaced for plant community sustainability. Plant community, composition, soil, precip, time of harvest, nutrient removal and replacement, etc., all are influential in yields attained. Yields of harvested forage will vary. In our area wild hay yields are generally in the 1-2 ton per acre range. One must consider, however, that much of the harvested landscape occurs on the steeper slopes. Projected yields of seeded, warm season grasses generally range between 3-4 ton per acre.

Hay harvested from warm season grasses is valuable and can be used for various purposes. Use and management require some thoughtful planning to achieve desired results. It may work for you in your operation. Hopefully information given in the presentation can be of help in making your decision.

Note: Data used – yields, plant compositions, restoration periods, etc., can be found in various published literature available to the public.